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# Packaging Guidelines

## ZEISS Industrial Quality Solutions

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## List of abbreviations

ZEISS IQS	ZEISS Industrial Quality Solutions
ESD	Electrostatic discharge
DIN	Deutsches Institut für Normung (German Institute for Standardization)
ISO	International Organization for Standardization
IPPC	Integrated Pollution Prevention and Control
PFAS	Per- and polyfluoroalkyl substances

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## 1 General

This document defines ZEISS Industrial Quality Solutions (IQS) general packaging requirements for supplier deliveries. The requirements are applicable globally. The list of IQS entities can be found in Appendix 1. Deviations from the Packaging Guidelines should be provided to and agreed on by your ZEISS IQS shipping contact. Deviations will need to be agreed upon by each IQS plant. Failure to comply with general packaging requirements may result in a complaint and have a negative effect on the supplier's assessment. Item-specific packaging designed and/or specified by ZEISS is out of scope.

### 1.1 General requirements for packaging

Supplier packaging should comply with the following requirements:

- The main purpose of packaging is to protect the goods against environmental influences, damage, contamination (e.g. by dust) and volume loss as well as secure adequate transport and handling.
- Packaging must comply with the current national and international legal requirements. In particular for paper, carton and wooden packaging, the EU Deforestation Regulation must be fulfilled to ensure responsible sourcing of wood used for packaging along with the Packaging and Packaging Waste Directive to ensure responsible packaging design.
- Suppliers are required to monitor and adhere to new and updated legal requirements concerning packaging to ensure compliance.
- Unnecessary packaging material (e.g. double packing) must be avoided to reduce packaging waste.
- Packaging should be appropriately sized. Recommended empty space ratio is maximum 40%.
- The goods must be delivered in such a way that one quantity unit (e.g. 1 piece) is identifiable and can be removed per quantity unit.
- Each quantity unit must be clearly marked with the ZEISS material number without affixing the number directly to the quantity unit itself (due to visible and sensitive surfaces etc.). Serial numbers must be specified on the delivery note and on the goods without attaching them directly to the goods themselves.
- Packaging must ensure that the parts are delivered in a clean and undamaged condition.
- Packaging must be designed in such a way that the components are protected against mechanical damage (e.g. deformation) and corrosion protection is guaranteed.
- Packaging must not contain any hazardous substances, e.g. PFAS.

### 1.2 Environmental conditions

- Packaging must be designed in accordance with the environmental conditions (temperature, air pressure, humidity).
- If certain environmental conditions must be complied with, this should be made clear by marking the packaging with corresponding transport symbols.

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### 1.3 Safety requirements

- For ESD sensitive goods, the specifications of DIN 61340-5-1 must be complied with.
- When transporting goods which react sensitively to tilting and tipping, tilt indicators must be attached to the outer lateral surfaces of the packaging. The use of tilt indicators must be coordinated with ZEISS IQS.
- In addition, shock indicators must be attached to the outer surfaces of the packaging of shock-sensitive assemblies/systems after consulting with ZEISS IQS.
- For goods containing lithium batteries consider the latest shipping regulations.

### 1.4 Marking with symbols according to ISO 7000

- Symbols for transport packaging must be attached to the packaging in accordance with ISO 7000. The use of the respective symbols must be adapted to the specific application.
- Symbols should be placed directly on the packaging if possible. If this is not possible, they should be placed on a label instead.
- The colour of the symbols is normally black. If black is not discernible due to the packaging, a contrast colour, e.g. white, should be used for clear detectability.
- The use of colours such as red, orange or yellow is permissible only for hazardous goods and in accordance with the corresponding regulation.
- The placement of the symbols must be selected in a way that they are not covered up/hidden.

### 1.5 Delivery address

- Please pay attention to the shipping and billing address on our purchase orders.
- Forwarders must deliver to the delivery address specified in the respective ZEISS order even if that means transporting the goods to several different locations.

### 1.6 Delivery note

- Supplier is required to provide delivery notes to freight carriers.
- One delivery note must always be attached to the shipment.
- For international shipments, second copy of the delivery note is required to be placed inside the shipment as the outer delivery note is frequently removed by customs.
- Delivery date as stated on the purchase order is the date we expect goods to arrive at ZEISS IQS. Applies to all types of deliveries, including ex works.

The following data must be included on the delivery note (see Figure 1):

- ZEISS purchase order number (barcode required)
- ZEISS customer number
- Correct delivery address
- ZEISS contact
- Material number (barcode optional)
- Material description
- Quantity (barcode optional)
- Serial number / batch number (barcode required)

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- Number of boxes (in case the shipment includes multiple packages)
- Supplier delivery note number (barcode optional)
- Delivery note creation date (i.e. ship date)
- Delivery date (i.e. arrival date)
- Supplier contact details

Please also ensure the following:

- Consignment goods: The comment must be included on the delivery note.
- Initial sample goods (FAI): A reference to first article inspection sample (FAI) must be made on the delivery note. FAI samples also must be separately marked and packaged. FAI sample test report must be attached to the goods on the outside.
- The barcodes on the delivery note must be in GS1 Standard, Code 128 Standard or QR Code.








<p>VENDOR NAME VENDOR ADDRESS VENDOR CONTACT DELIVERY NOTE CREATION</p>										
<p>CUSTOMER (ZEISS) NAME DELIVERY ADDRESS ZEISS CONTACT DELIVERY DATE</p>										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">PART DESCRIPTION</th> <th style="width: 15%;">QTY DELIVERED</th> <th style="width: 50%;">PART NUMBER</th> </tr> </thead> <tbody> <tr> <td>SHRD Endcap Front</td> <td style="text-align: center;">2</td> <td style="text-align: center;">   <b>000000-2154-353</b> </td> </tr> <tr> <td><u>BRKT;Z-AX SHRD,RSR,Plastic</u></td> <td style="text-align: center;">10</td> <td style="text-align: center;">   <b>000000-2152-258</b> </td> </tr> </tbody> </table>		PART DESCRIPTION	QTY DELIVERED	PART NUMBER	SHRD Endcap Front	2	 <b>000000-2154-353</b>	<u>BRKT;Z-AX SHRD,RSR,Plastic</u>	10	 <b>000000-2152-258</b>
PART DESCRIPTION	QTY DELIVERED	PART NUMBER								
SHRD Endcap Front	2	 <b>000000-2154-353</b>								
<u>BRKT;Z-AX SHRD,RSR,Plastic</u>	10	 <b>000000-2152-258</b>								

Figure 1: Delivery note

### 1.7 Further requirements

- Certificates and test documentation must be attached if required.
- If several packages are included, they must be labeled accordingly (1 of ...)
- If one material consists of several parts, these must be consolidated and labeled.
- Individual parts must be labeled with ZEISS material numbers.
- Deliver spare parts individually packaged if it is known that spare parts are involved.

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## 2 Disposable packaging

### 2.1 General

- Disposable packaging is provided by the supplier.
- Disposable packaging is particularly encouraged in case of international deliveries where return of empty packaging is not economically or environmentally sensible.
- Disposable packaging must be designed to meet specifications outlined in section 2.2.2.

### 2.2 Packaging requirements

#### 2.2.1 Storage

- If disposable packaging is involved, it must be ensured that the individual packages are storable and stackable, depending on their size and weight.
- The maximum permissible load to stack packaging must be considered and, if necessary, the stacking properties must be labeled on the packages with the appropriate symbols.

#### 2.2.2 Specifications

- Packaging must not cause any risk of injury (e.g. sharp edges must be avoided).
- Packaging must be designed to withstand the loads exerted by the intended type of transport.
- Packaging must ensure reliable protection against corrosion to preserve the quality of the goods.
- It must be ensured by the packaging that no humidity enters the packaging and damages the goods.
- Filling material used must be kept to a necessary minimum. Virgin paper filling material is preferred.
- The use of styrofoam chips and hygroscopic filling materials such as wood shavings, hay, straw or wastepaper is prohibited.
- The use of composite materials is prohibited. Composite material is defined as material produced from two or more bonded/glued materials with different chemical and physical properties (e.g. foam glued on carton)
- In case of plastics, recyclable mono-plastics such as PP, PE, PET are preferred.
- The materials used must be largely recyclable.

#### 2.2.3 Labeling of disposable packaging

- If disposable packaging is used, the goods must be labeled with a delivery note as described in section 1.6.
- If several parts are delivered in a single piece of disposable packaging, the individual parts must be labeled clearly and with the following data.
  - Company labeling
  - ZEISS material number (barcode/QR code optional)
  - Version status
- A logistics goods label with a barcode (Figure 2) must be attached to each material package.
  - The label must be attached to the outside of the packaging and must be

readable both manually and automatically with a scanner. Labels must not be concealed by parts of the packaging or the strapping.

- Pallets must be packed so that the label is identifiable at all times. If necessary, a second label must be attached to the packaging (two-sided labeling).

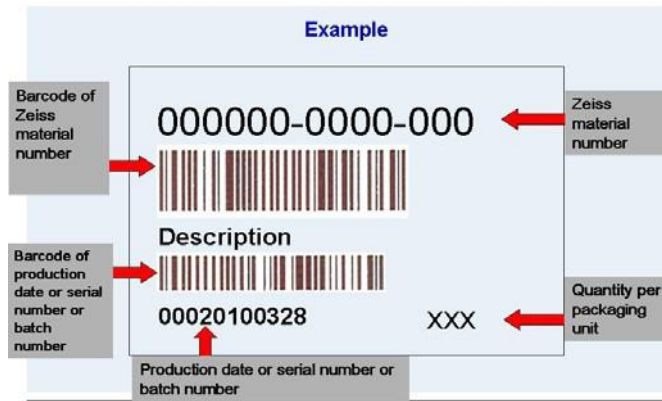


Figure 2: Goods label

## 2.2.4 Transport

- If goods are packed using a pallet, make sure that the packaging does not exceed the dimensions of the pallet.
- When shipping disposable packaging, the selected means of transport must correspond to the requirements of the material.
- It must be ensured that the goods are secured and are not damaged. Loosely packaged parts are prohibited.
- Repackaging during transport must be avoided.
- Packaging must be designed so that all materials are accessible.
- Packaging must be designed for the requirements and principles of the selected shipping method.
- Wooden packaging and transport means must be designed according to the IPPC standard.

## 2.2.5 Case examples: Inadequate packaging



Figure 3: Inadequate packaging (no reliable protection, goods are not secured, excessive pallet wrapping, packaging condition is not clean)



Figure 4: Inadequate packaging (oversized box, items are not secured)

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## 2.2.6 Case examples: Recommended packaging



**Figure 5: Recommended packaging** (cardboard box with paper inlay providing reliable protection of goods and use of mono-material, recyclable packaging)



**Figure 6: Before with foam** (limited recyclability of foam)

**Figure 7: After with carton** (mono-material, fully recyclable)

## 3 Reusable packaging

### 3.1 General

- Returnable containers are provided to the supplier by ZEISS IQS.
- If a supplier prefers delivering the goods in its own reusable packaging, it must be clarified in advance whether this packaging meets ZEISS IQS requirements.
- It must be ensured that the containers remain in a clean and tidy condition.
- The supplier is responsible for the cleaning costs incurred by the supplier.
- If a returnable container is damaged, this will be reported to ZEISS IQS and the further course of action has to be clarified.
- Vendor must inform responsible ZEISS Lead Planner as soon as possible if a blue box is missing for the upcoming delivery.
- Reusable packaging is recommended to be used as a local-to-local approach with reasonable distances to avoid excessive shipping of packaging.

### 3.2 Packaging requirements

#### 3.2.1 Types of reusable packaging

- Shuttle containers (Figure 8, 10, 11)
  - The reusable packaging is transported back and forth between ZEISS IQS and the

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supplier.

- The shuttle container may be suitable for several materials, which are indicated on the outside of each box.
- Kanban containers (Figure 9)
  - There are several types of Kanban shuttle containers mostly used for demand-driven supply of materials.



Figure 8: Blue box



Figure 10: Wooden shuttle container



Figure 9: Kanban container



Figure 11: Cardboard shuttle box

### 3.2.2 Labeling of reusable packaging

- If reusable packaging is used, the goods are provided with a delivery note as described in section 1.6.
- ZEISS IQS is responsible to maintain reusable packaging labels as shown in Figure 12.

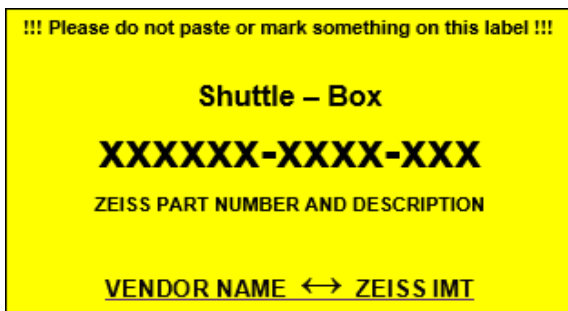


Figure 12: Shuttle container label

- The supplier must consider the following points:
  - It is prohibited to cover the labels.
  - Validate that materials correspond with the labels.

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- The number of the shuttle box is on the label in the top right corner.
- The shuttle way is indicated on the label.
- Empty shuttle box is returned to the warehouse

### 3.2.3 Case example for reusable packaging



Figure 13: Correct application of reusable packaging

### 3.3 Change management

If the supplier determines that the reusable packaging supplied by ZEISS IQS does not meet the requirements of the material, this must be communicated to ZEISS IQS and the further course of action must be discussed.

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## Appendix 1: List of IQS entities

Carl Zeiss Industrielle Messtechnik GmbH  
 Carl Zeiss IQS Deutschland GmbH  
 Carl Zeiss GOM Metrology GmbH  
 Carl Zeiss IMT (Shanghai) Co., Ltd.  
 Carl Zeiss (Suzhou) Co., Ltd.  
 Carl Zeiss MES Solutions GmbH  
 Carl Zeiss Optical Components GmbH  
 Carl Zeiss X-ray Technologies S.r.l.  
 Carl Zeiss Industrielle Messtechnik Austria GmbH  
 Carl Zeiss MES Solutions S.R.L.  
 Carl Zeiss Industrial Metrology, LLC  
 Carl Zeiss Industrial Quality Solutions, LLC  
 Carl Zeiss India (Bangalore) Pvt. Ltd.

*The list is not exhaustive and may contain additional entities. In case of questions or uncertainties, please reach out to your main point of contact for further information.*